

Notice of Allowability

Application No.

10/799,914

Applicant(s)

WETZER ET AL.

Examiner

Art Unit

James A. Reagan

3621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the telephone interview held on 07 October 2005.
2. ☒ The allowed claim(s) is/are 1,2,5-20 and 23-35.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

Status of Claims

1. This action is in response to the telephone interview held on 07 October 2005.
2. Claims 1, 16, 19, and 32 have been amended.
3. Claims 3, 4, 21, 22, and 36-58 have been cancelled.
4. Claims 1, 2, 5-20, and 23-35 have been examined.

Allowable Subject Matter

5. Claims 1, 2, 5-20, and 23-35 are allowed. See Reasons for Allowance under separate heading.

Drawings

6. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the drawings are informal. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Information Disclosure Statement

7. The Information Disclosure Statements have been considered. Initialed copies of the Form 1449 are enclosed herewith.

EXAMINER'S AMENDMENT

8. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
9. Authorization for this examiner's amendment was given in a telephone interview with John Nethery on 07 October 2005.
10. The application has been amended as follows:

CLAIM 1. (CURRENTLY AMENDED) A method of managing maintenance activities for at least one item of equipment, the method comprising:

determining configuration maintenance requirements for maintaining a target configuration of an item of equipment;

including establishing the target configuration of the item of equipment based on a design objective of the item of equipment, wherein the design objective includes safety, reliability, and performance, or a combination thereof;

evaluating an actual configuration of the item of equipment;

determining if the actual configuration complies with the target configuration;

determining predictive maintenance requirements for the item of equipment based on a longevity estimate, a probability of failure, a financial analysis, or a combination thereof; and

planning for the availability of at least one of resources and a component for performing maintenance consistent with the configuration maintenance requirements and the predictive maintenance requirements;

including planning an upgrade requirement for upgrading the actual configuration to the target configuration if the actual configuration is noncompliant.

2. (Currently amended) The method according to claim 1 further comprising establishing a universal representation of components to facilitate acquisition of components from multiple sources, interchangeability of components, and tracking of component utilization, or a combination thereof.

CLAIM 3. (CANCELLED)

CLAIM 4. (CANCELLED)

CLAIM 5. (Original) The method according to claim 1 wherein the determining predictive maintenance requirements comprises:

tracking performance data on at least one of a particular component and the item of equipment; and

predicting at least one required maintenance activity based upon the performance data with respect to a defined performance standard.

CLAIM 6. (Original) The method according to claim 5 wherein the planning comprises:

scheduling performance of the required maintenance activity at a defined respective time based upon the predicting.

CLAIM 7. (Original) The method according to claim 1 wherein the planning comprises planning for the acquisition of at least one of the resources and the component consistent with the configuration maintenance requirements and the predictive maintenance requirements.

CLAIM 8. (Original) The method according to claim 1 wherein the planning comprises planning for the delivery of at least one of the resources and the component for a time interval at a common geographic location.

CLAIM 9. (Original) The method according to claim 1 wherein the determining the maintenance requirement comprises estimating a longevity of a component based on a historical longevity of at least one of the component and an analogous component.

CLAIM 10. (Original) The method according to claim 1 wherein the determining the maintenance requirement comprises estimating a probability of failure of a component based on a historical probability of failure of at least one of the component and an analogous component.

CLAIM 11. (Original) The method according to claim 1 wherein the determining the maintenance requirement comprises estimating a financial impact of a component based on a historical impact of at least one of the component and an analogous component.

CLAIM 12. (Original) The method according to claim 1 wherein the planning step includes obtaining the component for the target configuration and scheduling human resources consistent with availability of the component.

CLAIM 13. (Original) The method according to claim 1 further comprising updating the target configuration based on engineering change.

CLAIM 14. (Original) The method according to claim 1 further comprising updating the target configuration to facilitate compliance with a regulatory requirement.

CLAIM 15. (Original) The method according to claim 1 wherein the planning step includes scheduling and bringing together at least two of the following resources at a specific time and place:

a requisite component, technical instructions, supporting equipment, acceptance criteria and procedures, tools, and repair personnel.

CLAIM 16. (Currently amended) The method according to claim 1 further comprising establishing a universal nomenclature definition applicable to a component, an item of equipment, a system, and an assembly of components, or a combination thereof to support the exchange of data associated with the universal nomenclature definition.

CLAIM 17. (Original) The method according to claim 1 further comprising querying a database containing components associated with corresponding universal nomenclature descriptors.

CLAIM 18. (Original) The method according to claim 1 further comprising the step of estimating a remaining life span of a component by determining a usage time span between an installation date of the component and a subsequent date, and deducting the usage time span from the longevity for the corresponding component.

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CLAIM 19. (Currently amended) A system of managing maintenance activities for at least one item of equipment, the system comprising:

a configuration monitor for determining configuration maintenance requirements for maintaining a target configuration of an item of equipment;

wherein the configuration monitor establishes the target configuration of the item of equipment and determines whether an actual configuration complies with the target configuration;

the target configuration being based on at least one of safety, reliability, and performance;

a predictive maintenance controller for determining predictive maintenance requirements for the item of equipment based on a longevity estimate, a probability of failure, and a financial analysis, or a combination thereof; and

a resource planner for planning for the availability of at least one of resources and a component for performing maintenance consistent with the configuration maintenance requirements and the predictive maintenance requirements;

wherein resource planner is arranged to plan an upgrade requirement for upgrading the actual configuration to the target configuration if the actual configuration is noncompliant.

CLAIM 20. (Currently amended) The system according to claim 19 further comprising:

a universal nomenclature manager for establishing a universal representation of components to facilitate acquisition of components from multiple sources, interchangeability of components, and tracking of component utilization, or a combination thereof.

CLAIM 21. (CANCELLED)

CLAIM 22. (CANCELLED)

CLAIM 23. (Original) The system according to claim 19 wherein the predictive maintenance controller tracks performance data on at least one of a particular component and the item of equipment and predicts at least one required maintenance activity based upon the performance data with respect to a defined performance standard.

CLAIM 24. (Original) The system according to claim 23 wherein the resource planner schedules performance of the required maintenance activity at a defined time to maximize availability of the item of equipment.

CLAIM 25. (Original) The system according to claim 19 wherein the resource planner plans for the acquisition of at least one of the resources and the component consistent with the configuration maintenance requirements and the predictive maintenance requirements.

CLAIM 26. (Original) The system according to claim 19 wherein the resource planner comprises planning for the delivery of at least one of the resources and the component for a time interval at a common geographic location.

CLAIM 27. (Original) The system according to claim 19 wherein the longevity estimate of a component is based on a historical longevity of at least one of the component and an analogous component.

CLAIM 28. (Original) The system according to claim 19 wherein the probability of failure of a component is based on a historical probability of failure of at least one of the component and an analogous component.

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CLAIM 29. (Original) The system according to claim 19 wherein the financial impact of a component is based on a historical impact of at least one of the component and an analogous component.

CLAIM 30. (Original) The system according to claim 19 further comprising:

a purchasing system for obtaining the component for the target configuration; and

a personnel management system for scheduling human resources consistent with availability of the component.

CLAIM 31. (Original) The system according to claim 19 wherein the target configuration complies with an engineering standard.

CLAIM 32. (Original) The system according to claim 19 wherein the target configuration complies with a regulatory requirement.

CLAIM 33. (Original) The system according to claim 19 further comprising a resource planner for scheduling and bringing together at least two of the following resources at a specific time and place:

a requisite component, technical instructions, supporting equipment, acceptance criteria and procedures, tools, and repair personnel.

CLAIM 34. (Original) The system according to claim 19 further comprising a universal nomenclature manager for establishing a universal nomenclature definition applicable to at least one of a component, an item of equipment, a system, and an assembly of components to support the exchange of data associated with the universal nomenclature definition.

CLAIM 35. (Original) The system according to claim 19 further comprising a universal nomenclature manager for querying a database containing components associated with corresponding universal nomenclature descriptors.

CLAIMS 36-58. (CANCELLED)

Reasons For Allowance

11. The following is an Examiner's statement of reasons for allowance:

None of the art of record, taken individually or combination, disclose at least the method step of:

- *determining configuration maintenance requirements for maintaining a target configuration of an item of equipment;*
- *including establishing the target configuration of the item of equipment based on a design objective of the item of equipment, wherein the design objective includes safety, reliability, and performance, or a combination thereof;*
- *evaluating an actual configuration of the item of equipment;*
- *determining if the actual configuration complies with the target configuration;*
- *including planning an upgrade requirement for upgrading the actual configuration to the target configuration if the actual configuration is noncompliant.*

More specifically, the prior art of record fails to disclose comparing a target configuration of an item with the actual configuration of a system to determine a upgrade plan for that system.

Independent claims 1 and 19 are distinguished over the closest prior art of Kroenke (Database Processing 1999), which teaches database processing in Chapter 1, pages 3-23, as well as file processing, instantiation of records, organizational context, and modeling of relational databases. As recited in independent claims 1 and 19, it is clear that the Applicant's invention is

distinguished over the Kroenke invention in at least the method step of comparing actual and target configurations, and then formulating an upgrade plan to achieve compliance with then target configuration.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Cornett et al. (US 5,216,612 A) discloses database implementation in column 25 line 26, where he describes using a database file structure to store part numbers, description status, and other noteworthy segments of information regarding computerized maintenance systems. See also the Figures 12a-22.

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Any inquiry of a general nature or relating to the status of this application or concerning this communication or earlier communications from the Examiner should be directed to **James A. Reagan** whose telephone number is **571.272.6710**. The Examiner can normally be reached on Monday-Friday, 9:30am-5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, **James Trammell** can be reached at **571.272.6712**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://portal.uspto.gov/external/portal/pair> . Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866.217.9197** (toll-free).

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

571-273-8300 [Official communications, After Final communications labeled "Box AF"]

571-273-8300 [Informal/Draft communications, labeled "PROPOSED" or "DRAFT"]

Hand delivered responses should be brought to the **United States Patent and Trademark Office Customer Service Window:**

Randolph Building

401 Dulany Street

Alexandria, VA 22314.

JAMES A. REAGAN

Primary Examiner

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18 October 2005

A handwritten signature in black ink, appearing to read 'James A. Reagan', with a stylized flourish at the end.